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## Replacement sheets

## CLAIMS

1. A genetic vaccine construct comprising an avipox virus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof, wherein said avipox virus vector does not productively infect said subject.
2. A genetic vaccine construct comprising an avipox virus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof, and a sequence of nucleotides encoding an immunostimulatory polypeptide, wherein said avipox virus vector does not productively infect said subject.
3. The genetic vaccine construct of claim 1 or 2, wherein the prostate specific polypeptide is prostatic acid phosphatase or a derivative or analogue thereof.
4. The genetic vaccine construct of any one of claims 1 to 3, wherein the subject is a human subject.
5. The genetic vaccine construct of claim 4, wherein the xenogeneic prostate specific polypeptide is rodent prostatic acid phosphatase.
6. The genetic vaccine construct of claim 5, wherein the rodent prostatic acid phosphatase is rat prostatic acid phosphatase.
7. The genetic vaccine construct of claim 2, wherein the immunostimulatory polypeptide is a cytokine.
8. The genetic vaccine construct of claim 7, wherein the cytokine is one or more of IL-2, IL-12, TNF $\alpha$ , IFN $\gamma$ , IL-6, IL-4, IL-7 or GM-CSF.
9. The genetic vaccine construct of claim 8, wherein the cytokine is one or more of

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- IL-2, IFN $\gamma$  or IL-12.
10. The genetic vaccine construct of claim 9, wherein the cytokine is IL-2.
  11. The genetic vaccine construct of any one of claims 1 to 10, wherein the avipox virus vector is a fowlpox virus vector.
  12. A composition comprising the genetic vaccine construct according to any one of claims 1 to 11.
  13. A composition consisting essentially of the genetic vaccine construct according to any one of claims 1 to 11.
  14. The composition of claim 12 or 13, wherein expression products of said genetic vaccine construct stimulate a prostate cell specific immune response.
  15. The composition of claim 14, wherein prostate cell specific immune response is a PAP specific immune response.
  16. The composition of claim 14 or 15, wherein the expression products of the genetic vaccine construct stimulate autoimmune prostatitis.
  17. A recombinant vector for use in making the genetic vaccine construct according to any one of claims 1 to 11 comprising:
    - i) avipox virus vector nucleic acid sequences comprising sites for homologous recombination with an avipox virus vector;
    - ii) one or more promoters; and
    - iii) a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide.
  18. A recombinant vector for use in making the genetic vaccine construct according to any one of claims 2 to 11 comprising:
    - i) avipox virus vector nucleic acid sequences comprising sites for homologous recombination with an avipox virus vector;
    - ii) one or more promoters;

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- iii) a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide; and
  - iv) a sequence of nucleotides encoding an immunostimulatory polypeptide.
19. A eukaryotic cell infected with a genetic vaccine construct according to any one of claims 1 to 11.
20. An antibody capable of acting as a marker for the genetic vaccine construct which antibody recognises epitopes uniquely formed in expression products of the genetic vaccine construct according to any one of claims 1 to 11.
21. A nucleic acid probe comprising a complementary form of a contiguous sequence of nucleotides of all or part of the genetic vaccine construct according to any one of claims 1 to 11 which specifically recognises said genetic vaccine construct under appropriate hybridisation conditions.
22. A method for stimulating or otherwise enhancing a prostate cell specific immune response in a subject comprising administration to the subject of an effective amount of a composition comprising a genetic vaccine construct comprising an avipox virus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof, for a time and under conditions sufficient for expression products of said genetic vaccine construct to stimulate or otherwise enhance a prostate cell specific immune response, and wherein said avipox virus vector does not productively infect said subject.
23. A method for stimulating or otherwise enhancing a prostate cell specific immune response in a subject comprising administration to said subject of an effective amount of a composition comprising a genetic vaccine construct comprising an avipox virus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof and

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a sequence of nucleotides encoding an immunostimulatory polypeptide, for a time and under conditions sufficient for expression products of said genetic vaccine construct to stimulate or otherwise enhance a prostate cell specific immune response, and wherein said avipox virus vector does not productively infect said subject and a sequence of nucleotides encoding an immunostimulatory polypeptide.

24. A method for immunotherapy and/or immunoprophylaxis of prostate cancer comprising administration of an effective amount of a composition comprising a genetic vaccine construct comprising an avipox virus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof, wherein said vector does not productively infect said subject, and wherein expression products of said vector stimulate a prostate cell specific immune response effective in the treatment and/or prophylaxis of prostate cancer.
25. A method for immunotherapy and/or immunoprophylaxis of prostate cancer comprising administration of an effective amount of a composition comprising a genetic vaccine construct comprising an avipox virus vector which incorporates and, on administration to a subject, expresses in a cell of said subject, a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof, and a sequence of nucleotides encoding an immunostimulatory polypeptide, wherein said vector does not productively infect said subject, and wherein expression products of said vector stimulate a prostate cell specific immune response effective in the treatment and/or prophylaxis of prostate cancer.
26. The method of any one of claims 22 to 25, wherein the prostate specific polypeptide is a prostatic acid phosphatase or a derivative or analogue thereof and the prostate cell specific immune response is a PAP specific response.
27. The method of any one of claims 22 to 26, wherein the subject is a human.

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28. The method claim 27, wherein the prostate specific polypeptide is rodent prostatic acid phosphatase.
29. The method of claim 28, wherein the rodent prostatic acid phosphatase is rat prostatic acid phosphatase.
30. The method of claim 23 or 25, wherein the immunostimulatory polypeptide is a cytokine.
31. The method of claim 29, wherein the cytokine is one or more of cytokines IL-2, IL-12, TNF $\alpha$ , IFN $\gamma$ , IL-6, IL-4, IL-7 or GM-CSF.
32. The method of claim 31, wherein the cytokine is one or more of cytokines IL-2, IFN $\gamma$  and/or IL-12.
33. The method of claim 32, wherein the cytokine is IL-2.
34. The method of any one of claims 22 to 33, wherein the avipox virus vector is a fowlpox virus vector.
35. Use of an avipox virus vector comprising a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof in the manufacture of a medicament for use in stimulating or otherwise enhancing a prostate cell specific immune response in a mammalian subject.
36. Use of an avipox virus vector comprising a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof and a sequence of nucleotides encoding an immunostimulatory polypeptide in the manufacture of a medicament for use in stimulating or otherwise enhancing a prostate cell specific immune response in a mammalian subject.
37. Use of an avipox virus vector comprising a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof in the manufacture of a medicament for use in the immunotherapy and/or immunoprophylaxis of prostate cancer in a mammalian subject.

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38. Use of an avipox virus vector comprising a sequence of nucleotides encoding a xenogeneic prostate specific polypeptide or a derivative or analogue thereof and a sequence of nucleotides encoding an immunostimulatory polypeptide in the manufacture of a medicament for use in the immunotherapy and/or immunoprophylaxis of prostate cancer in a mammalian subject.
39. The use of any one of claims 35 to 36, wherein the prostate specific polypeptide is a prostatic acid phosphatase or a derivative or analogue thereof and the prostate cell specific immune response is a PAP specific response.
40. The use of any one of claims 35 to 39, wherein the subject is a human.
41. The use claim 40, wherein the prostate specific polypeptide is rodent prostatic acid phosphatase.
42. The use of claim 41, wherein the rodent prostatic acid phosphatase is rat prostatic acid phosphatase.
43. The use of claim 36 or 38, wherein the immunostimulatory polypeptide is a cytokine.
44. The use of claim 42, wherein the cytokine is one or more of cytokines IL-2, IL-12, TNF $\alpha$ , IFN $\gamma$ , IL-6, IL-4, IL-7 or GM-CSF.
45. The use of claim 44, wherein the cytokine is one or more of cytokines IL-2, IFN $\gamma$  and/or IL-12.
46. The use of claim 45, wherein the cytokine is IL-2.
47. The use of any one of claims 35 to 45, wherein the avipox virus vector is a fowlpox virus vector.

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